



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,939	03/07/2001	Craig M. Perlov	10005727	6763

7590 12/17/2002
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

PIZARRO CRESPO, MARCOS D

ART UNIT PAPER NUMBER

2814

DATE MAILED: 12/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,939

Applicant(s)

PERLOV ET AL.

Examiner

Marcos D. Pizarro-Crespo

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 19-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 17 and 18 is/are objected to.
- 8) ☒ Claim(s) 1-29 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Application/Control Number: 09/800,939 (Final Rejection)
Art Unit: 2814

Page 2

Attorney's Docket Number: 10005727-1

Filing Date: 3/7/2001

Claimed Foreign Priority Date: none

Applicant(s): Perlov et al.

Examiner: Marcos D. Pizarro-Crespo

DETAILED ACTION

This Office action responds to the amendment in paper no. 7 filed on 11/5/2002.

Acknowledgment

1. The amendment in paper no. 7 filed on 11/5/2002 in response to the Office action mailed on 7/31/2002 has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 1-29.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the semiconductor patterns in the sections of memory arrays forming each interface (see claims 3 and 5) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Lines 1-2 in each of claims 3 and 4 recite the limitation "the sections of memory arrays". There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-5, 8, and 10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nicewarner (US 5776797).

12. Nicewarner shows (see, e.g., figs. 4 and 5) all aspects of the instant invention including an assembly structure for a memory device, said assembly structure comprising:

- a substrate **12** having at least one fold line **71** thereon, dividing the substrate into at least two sections
- a layer **32** of memory arrays fabricated on each of the two sections (see, e.g., fig. 3)

Nicewarner further disposes each section so that the memory arrays on sections adjacent to each other form an interface in which the memory arrays are aligned to provide at least one operable electronic device with the at least two sections folded on each other along the fold line (see, e.g., fig. 3).

13. Regarding claim 2, Nicewarner shows the fold line **71** running approximately down a center of a definable portion of the substrate **12** (see, e.g., fig. 4).
14. Regarding claim 3, Nicewarner shows that the sections of memory arrays comprise semiconductor patterns (col.10/ll.25).
15. Regarding claim 4, Nicewarner shows (see, e.g., fig. 4) the sections of memory arrays forming each interface comprising conductor line patterns **70**.
16. Regarding claim 5, Nicewarner shows the sections forming at least one interface combined to provide a plurality of conductors **70** and semiconductor patterns (col.10/ll.25-35).
17. Regarding claim 8, Nicewarner shows (see, e.g., fig. 4) the fold line **71** comprising at least one crease in the substrate **12**.
18. Regarding claim 10, Nicewarner shows (see, e.g., figs. 8 and 9) that the assembly structure may comprise at least two fold lines on the substrate **74** providing at least three sections that fold over each other to produce at least two active memory devices.
19. Regarding claim 11, Nicewarner shows (see, e.g., figs. 8 and 9) the three sections including a center section having a set of conductor lines **110** on both sides of the center sections that align with memory devices **18, 24** on both sides of the center section after folding.
20. Regarding claim 12, Nicewarner shows (see, e.g., figs. 4 and 5) all aspects of the instant invention including an assembly structure for a memory device, said assembly comprising:

- a common substrate **12** having multiple sections
- a first layer **32** of a memory array disposed on a first section of the multiple sections
- a second layer **32** of a memory array disposed on a second section of the multiple sections
- at least one fold line **71** disposed on the common substrate **12** to define the alignment of the memory arrays on the first and second sections

wherein the sections may be folded on each other at the fold line **71** to form an operable electronic device (see, e.g., fig. 3).

21. Regarding claim 13, Nicewarner shows the memory array on the first section comprising a first plurality of conductor lines **70**, the memory array on the second section comprising a second plurality of conductor lines **68**, and that at least one of the memory arrays may comprise semiconductor materials (col.11/ll.29-35).

22. Regarding claim 14, Nicewarner fabricates the memory arrays of the first and second sections so that, with the first and second sections folded on each other at the fold line **71**, the first **70** and second **68** pluralities of conductor lines and the semiconductor materials are aligned with each other to form the operable electronic device (see, e.g., figs. 3 and 4).

23. Regarding claim 15, Nicewarner shows the first plurality of conductor lines **70** formed with an array of parallel conductors spaced across the first section, the second plurality of conductor lines **68** formed with an array of parallel conductors spaced across

the second section, and the second plurality of conductor lines **68** on the second section perpendicular to the plurality of conductor lines **70** on the first section.

24. Claims 6, 7, and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Nicewarner in view of Schantz (US 5453769).

25. Regarding claim 6, Nicewarner shows most aspects of the instant invention (see paragraphs 12-23 above), except for the fold line **71** comprising a series of aligned perforations.

Schantz, on the other hand, teaches (see, e.g., fig. 2; col.3/ll.4-7) that providing Nicewarner's fold line with a series of aligned perforations promotes hinge formations along the line.

It would have been obvious at the time of the invention to one of ordinary skill in the art to provide Nicewarner's fold line with a series of aligned perforation, as suggested by Schantz, to promote hinge formation.

26. Regarding claim 7, Nicewarner shows most aspects of the instant invention (see paragraphs 12-23 above), except for the fold line in the substrate comprising at least one indentation.

Schantz, on the other hand, teaches (col.3/ll.2-7) that providing the fold line in Nicewarner's substrate with indentations promotes hinge formation.

It would have been obvious at the time of the invention to one of ordinary skill in the art to provide the fold line in Nicewarner's substrate with indentations, as suggested by Schantz, to promote hinge formation.

27. Regarding claim 9, see the comments stated above with respect to claim 6 and claim 7, which are considered repeated here. In addition, Schantz teaches (col.3/ll.2-4) that a property of the substrate, e.g., its width, may change as a consequence of providing the fold line with the series of perforations.

28. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nicewarner in view of Chauvel (US 4623986).

29. Regarding claim 16, Nicewarner shows most aspects of the instant invention (see paragraphs 12-23 above). In addition, Nicewarner folds the first and second sections along the fold line 71 so that the layers 32 of memory arrays are in contact with each other, wherein the first and second sections comprises semiconductor materials and patterns thereon (col.10/ll.25-34; col.11/ll.29-34). Nicewarner further describes (col.1/ll.53-54) that his techniques are applicable to any form of commercially available memory chips, but fails to show the layers of memory arrays, which may consist of memory chips, having a matrix of memory cells.

Chauvel, on the other hand, teaches (col.1/ll.52-53) that it is well known that memories chips consist of matrixes of memory cells.

Consequently and as taught by Chauvel, it would have been obvious at the time of the invention to one of ordinary skill in the art that the layers of memory arrays of Nicewarner have matrixes of memory cells thereon, since this is of common knowledge in the art.

Allowable Subject Matter

30. Claims ~~16~~ and ~~17~~ are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

31. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

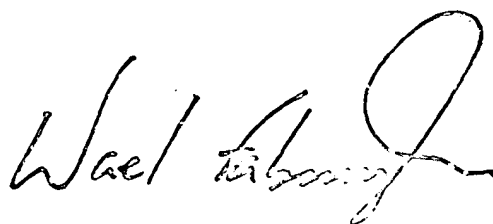
32. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

33. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

34. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Marcos D. Pizarro-Crespo** at **(703) 308-6558** and between the hours of 9:30 AM to 8:00 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Marcos.Pizarro@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918.

36. Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.



SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2800

Art Unit: 2814

37. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/666-786,797	12/3/2002
Other Documentation:	
Electronic Database(s): EAST (USPAT, EPO, JPO)	12/3/2002

Marcos D. Pizarro-Crespo

Patent Examiner

Art Unit 2814

703-308-6558

marcos.pizarro@uspto.gov